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| 10/563,165 | 08/01/2006 | Richard Hamilton Archer | DAIRY88.014APC | 5898 |
| 20995 7590 09/17/2009 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614 | | | | |
| EXAMINER | | | | |
| BADR, HAMID R | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1794 | | | | |
| NOTIFICATION DATE | | DELIVERY MODE | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
eOAPilot@kmob.com

Office Action Summary

Application No.

10/563,165

Applicant(s)

ARCHER ET AL.

Examiner

HAMID R. BADR

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/08)
Paper No(s)/Mail Date 12/28/2005, 6/15/2007
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Objection to Claims

Claim 12 is objected to for "A method a claimed in claim 1". The phrase should be corrected to read "as claimed in claim 1" . Correction is required.

Claim 14 is objected to for the name of organisms. The name of organisms must be either *italicized* (as in claim 13) or underlined. Correction is required.

Claims 12-13 are objected to for the misspelled "*compestris*". This word is spelled as "*campestris*". Correction is required.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 1 and 2 are indefinite for "cheesemaking mixture". "cheesemaking mixture" is not defined by the claims nor is it clear from the specification what kind of mixture it can be. It is unclear what is meant by "cheesemaking mixture".

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-18 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz et al. (EP 071 380; hereinafter R1) in view of Bernard et al. (US 4,948,613; hereinafter R2).

6. R1 discloses a process for preparing functionalized whey products. (Abstract). R1 discloses that it is possible to obtain whey products that may serve the function of a stabilizer, thickener, emulsifier or flavor enhancer. (page 1, lines 30-32). R1 discloses that an ultra-filtered and hydrolyzed whey medium fermented with *Xanthomonas campestris* results in excellent polymer formation. (page 2, lines 26-28). R1 also teaches of a fermentation process wherein unhydrolyzed whey (acid or sweet) results in polymer formation and functionalization of the whey so that the whey product can be utilized as a food ingredient. (page 3, lines 5-10). The fermentation is carried out at a temperature from about 20C to 35C. (page 3, lines 10-14). The desired viscosity is usually reached within 48-72 hours (page 4, lines 6-8).

7. Given that R1 discloses the use of hydrolyzed whey in the production of xanthan gum, it is obvious to carry out the hydrolysis by either using lactase or galactosidase or using lactic acid bacteria which hydrolyze lactose. The lactic acid bacteria as presently claimed are all known in the art e.g. *L. bulgaricus* and *S. thermophilus* are both used in cheese making.

8. It is noted that xanthan gum is produced from lactose through the aerobic fermentation of *Xanthomonas campestris*. Therefore, dairy products or by products such as milk permeate, whey permeate or skim milk permeate containing lactose can be fermented for the production of xanthan gum.

9. R1 discloses the production of a high viscosity broth produced by fermentation techniques. The high viscosity broth may be dried and/or sterilized by autoclave plus lyophilization, spray drying or other techniques. (page 5, lines 22-24).
10. Given that the viscous broth is sterilized and dried, it is clear that the exopolysaccharide (xanthan gum) is not separated and is contained in a mixture of other components including the heat treated microorganisms.
11. R1 discloses that the functionalized whey product can be used as a food ingredient where milk solids and/or whey and/or thickeners and or stabilizers are used such as in ice cream, salad dressing, foam stabilizers, puddings, snack foods etc.
12. While R1 discloses the use of the functionalized whey product, R1 is silent regarding the use of this product in cheesemaking.
13. R2 discloses the incorporation of xanthan gum into a mixture for the production of processed cheese. (Col. 5, Example 2). In the formulation disclosed by R2, xanthan gum and a protein concentrate (caseinate) are being incorporated into the processed cheese formulation.
14. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to make xanthan gum as taught by R1 and use in a processed cheese formulation as disclosed by R2. The xanthan gum functions as a thickener or stabilizer in the processed cheese product. Absent any evidence to contrary and based on the combined teachings of the cited references, there would have been a reasonable expectation of success in making a cheese product containing xanthan gum.

15. Claims 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz et al. (EP 071 380; hereinafter R1) in view of Chen et al. (US 5,104,674; hereinafter R3)

16. R1 disclosure is hereby incorporated by reference as applied above in paragraphs 6-11.

17. R1 is silent regarding the protein/xanthan mixture (complex) which can be used as food stabilizer, texture modifier, fat substitute etc.

18. R3 discloses the preparation of polysaccharide/protein complex dispersions which are suitable for use as fat substitute compositions in food products such as ice cream, dressings, dips, spreads. (Abstract).

19. R3 discloses xanthan/protein dispersions having a creamy mouthfeel, as well as specific desirable stability, functional and other characteristics which may be utilized in various food products. For example such xanthan/protein complexes may function as full or partial oil or fat replacement in a variety of food products such as frozen desserts, spreads, dips, analog cheese products, cultured dairy products etc. (Col. 11, lines 35-51).

20. Once a xanthan/protein complex (modified protein) is prepared as disclosed by R3, its incorporation into cheesemaking bases, comprising milk, addition of cheese starter cultures, and addition of rennet are all known in the art. When used in cheesemaking base, the xanthan/protein complex will prevent uncontrolled protein agglomeration and therefore, textural quality defects such as grainy, sandy and mealy mouthfeel will be prevented. This effect is more pronounced in a high protein dairy

product. Therefore, xanthan/milk protein concentrate (e.g. whey protein concentrate) can be used in the preparation of natural cheese as well as processed cheese as presently claimed.

21. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the xanthan containing mixture into a protein concentrate to make a stabilizer, bulk filler, texture modifier, fat substitute to be used in natural and processed cheeses. One would do so to modify the protein concentrate to impart functional properties to it. Absent any evidence to contrary and based on the teachings of the cited references, there would be a reasonable expectation of success in preparing a modified protein concentrate.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HAMID R. BADR whose telephone number is (571)270-3455. The examiner can normally be reached on M-F, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hamid R Badr
Examiner
Art Unit 1794

/KEITH D. HENDRICKS/

Supervisory Patent Examiner, Art Unit 1794